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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/887,533	06/25/2001	Irit Loy	LOY=2	5801

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EXAMINER

GUYTON, PHILIP A

ART UNIT PAPER NUMBER

2113

DATE MAILED: 04/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/887,533

Applicant(s)

LOY ET AL.

Examiner

Philip Guyton

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 June 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-63 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 9-14, 18-26, 30-35, 39-47, 51-56 and 60-63 is/are rejected.
- 7) ☒ Claim(s) 6-8, 15-17, 27-29, 36-38, 48-50 and 57-59 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Oath/Declaration

1. The Oath/Declaration as filed 22 February 2002 is not of sufficient quality to allow proper inspection. The examiner would appreciate a substitute copy of the document at applicant's convenience.

Specification

2. The attempt to incorporate subject matter into this application by reference to related U.S. Patent Applications listed under "Cross-Reference to Related Applications" on page 1 is ineffective because the reference documents are not clearly identified as required by 37 CFR 1.57(b)(2). The incorporation by reference will not be effective until correction is made to comply with 37 CFR 1.57(b), (c), or (d). If the incorporated material is relied upon to meet any outstanding objection, rejection, or other requirement imposed by the Office, the correction must be made within any time period set by the Office for responding to the objection, rejection, or other requirement for the incorporation to be effective. Compliance will not be held in abeyance with respect to responding to the objection, rejection, or other requirement for the incorporation to be effective. In no case may the correction be made later than the close of prosecution as defined in 37 CFR 1.114(b), or abandonment of the application, whichever occurs earlier. Any correction inserting material by amendment that was previously incorporated by reference must be accompanied by a statement that the material being

inserted is the material incorporated by reference and the amendment contains no new matter. 37 CFR 1.57(f)

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-5, 9-14, 18, 19, 22-26, 30-35, 39, 40, 43-47, 51-56, 60, and 61 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,249,879 to Walker et al. (hereinafter Walker).

With respect to claim 1, Walker discloses in a cluster of computing nodes (figure 1, item 100 and column 4, lines 28-39) having shared access to one or more volumes of data storage [dual ported disk (figure 1, item 104)] using a parallel file system (column 6, lines 16-28), a method for managing the data storage, comprising:

initiating a session of a data management application [application process (figure 2, item 204a)] on a session node [active server node (figure 2, item 102a)] selected from among the nodes in the cluster (column 5, lines 14-19);

receiving an event message in a session queue for processing by the data management application at the session node, responsive to a request submitted to the

parallel file system by a user application on a source node among the nodes in the cluster to perform a file operation on a file in the data storage (column 6, lines 45-48); and

following a failure at the session node, reconstructing the session queue so that processing of the event message by the data management application can continue after recovery from the failure (column 6, lines 54-61).

With respect to claim 2, Walker discloses wherein the failure at the session node comprises a file system failure at the session node (column 6, lines 48-51).

With respect to claim 3, Walker discloses wherein reconstructing the session queue comprises selecting a new session node [standby server node (figure 2, item 102b)] from among the nodes on which the file system failure has not occurred, and moving the data management session to the new session node (column 6, lines 54-59).

With respect to claim 4, Walker discloses wherein reconstructing the session queue comprises selecting a new session node [standby server node (figure 2, item 102b)] from among the nodes in the cluster, and assuming the data management session on the new session node (column 6, lines 54-59), whereupon the session queue is reconstructed on the new session node (column 9, lines 46-49 and 58-62).

With respect to claim 5, Walker discloses wherein assuming the data management session comprises moving the session to a different node from the session node used before the failure (column 6, lines 31-34).

With respect to claim 9, Walker discloses storing information regarding the session and events before the failure at one or more additional nodes among the nodes

in the cluster, wherein reconstructing the session queue comprises using the information stored at the one or more additional nodes to reconstruct the queue (column 9, lines 58-67 and column 10, lines 1-5).

With respect to claim 10, Walker discloses selecting one of the nodes to serve as a session manager node (column 9, lines 34-39), and assuming the session by sending a message to the session manager node, causing the session manager node to distribute information regarding the session among the nodes in the cluster so that the data management application can continue after the recovery (column 9, lines 40-57).

With respect to claim 11, Walker discloses wherein initiating the session comprises initiating the session in accordance with a data management application programming interface (DMAPI) of the parallel file system, and wherein processing the event message comprises processing the request using the DMAPI (column 5, lines 14-45).

With respect to claim 12, Walker discloses sending a response to the event message from the data management application on the session node to the source node following the recovery from the failure; and performing the file operation requested by the source node subject to the response from the data management application (column 8, lines 52-58).

With respect to claim 13, Walker discloses wherein receiving the event message comprises receiving the message responsive to submission of the request by a file operation thread of a user application running on the source node, and blocking the

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thread until the response is received from the session node after the recovery from the failure (column 8, lines 52-58).

With respect to claim 14, Walker discloses wherein reconstructing the session queue comprises sending a message from the session node to all of the nodes, so as to prompt the file operation thread on the source node to submit a new event message to the session node, whereby the event is placed in the reconstructed queue responsive to the new message (column 9, lines 63-67 and column 10, lines 1-5).

With respect to claim 18, Walker discloses processing the event message in the reconstructed queue, and responsive to the event message, reacquiring a data management access right needed to handle the request (column 9, lines 33-38).

With respect to claim 19, Walker discloses wherein receiving the event message comprises receiving multiple event messages from multiple source nodes in the cluster, and wherein reconstructing the session queue comprises collecting information regarding the session and events from the multiple source nodes (column 9, lines 63-67 and column 10, lines 1-5).

Claims 22-26, 30-35, 39, and 40 are an apparatus for implementing the method of claims 1-5, 7-14, 18, and 19, and are rejected on the same grounds.

Claims 43-47, 51-56, 60, and 61 are a computer software product for implementing the method of claims 1-5, 7-14, 18, and 19, and are rejected on the same grounds.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 20, 41, and 62 are rejected under 35 U.S.C. 103(a) as being unpatentable over Walker in view of U.S. Patent No. 5,644,766 to Coy et al. (hereinafter Coy).

With respect to claim 20, Walker does not disclose expressly wherein initiating the session of the data management application comprises initiating a data migration application, so as to free storage space on at least one of the volumes of data storage.

Coy teaches a process of data migration to achieve low occupancy in a specified storage pool (column 1, lines 66-67 and column 2, lines 1-5).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify Walker to initiate a data migration application as taught by Coy. A person of ordinary skill in the art would have been motivated to do so because Walker discloses a storage apparatus containing multiple file systems (column 4, lines 58-64). Coy teaches that data migration helps to keep a storage pool at low occupancy, thus being desirable to the invention of Walker.

Claim 41 is an apparatus for implementing the method of claim 20, and is rejected on the same grounds.

Claim 62 is a computer software product for implementing the method of claim 20, and is rejected on the same grounds.

7. Claims 21, 42, and 63 are rejected under 35 U.S.C. 103(a) as being unpatentable over Walker in view of U.S. Patent No. 6,601,101 to Lee et al. (hereinafter Lee).

With respect to claim 21, Walker does not disclose expressly following the failure, when the source node has not received a response to the event message within a predetermined lapse of time, failing the request submitted at the source node to the parallel file system.

Lee teaches wherein a device waits for transmission from a second device for a specified timeout interval, after which a failure is indicated (column 15, lines 28-52 and column 16, lines 20-23).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify Walker to fail the request after a period of time as taught by Lee. A person of ordinary skill in the art would have been motivated to do so because Walker specifies a period of waiting (column 6, lines 54-61), but does not disclose a timeout condition. Accordingly, a timeout would have been highly desirable to Walker so that the client node would not wait for an infinite amount of time for a response.

Claim 42 is an apparatus for implementing the method of claim 21, and is rejected on the same grounds.

Claim 63 is a computer software product for implementing the method of claim 21, and is rejected on the same grounds.

Allowable Subject Matter

8. Claims 6-8, 15-17, 27-29, 36-38, 48-50, and 57-59 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See PTO-892.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Philip Guyton whose telephone number is (571) 272-3807. The examiner can normally be reached on M-F 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Beausoliel can be reached on (571) 272-3645. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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